

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Arsenault et al.

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which is based on application
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Continuation Filed: Herewith

For:
METHOD AND APPARATUS
FOR IN-LINE DETECTION OF
SATELLITE SIGNAL LOCK

Group Art Unit: TO BE DETERMINED

Examiner: TO BE DETERMINED

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PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

Preliminary to examination on the merits, please amend the above-captioned application as follows.

IN THE CLAIMS:

Please cancel claims 1-12, 14, 19-34 and 37-42 without prejudice to their further prosecution and add claims 43-68 as follows:

100T-50-4566330

43. A device for use in a satellite communication system having an antenna that receives a broadcast signal and an integrated receiver decoder coupled to the antenna, the device comprising:

a bypass circuit that is adapted to be coupled between the antenna and the integrated receiver decoder to convey a first portion of the broadcast signal from the antenna to the integrated receiver decoder;

a first filter circuit that is adapted to be coupled to the antenna to receive a second portion of the broadcast signal from the antenna and to pass a service signal to a first filter output;

a second filter circuit that is adapted to be coupled to the antenna to receive a third portion of the broadcast signal from the antenna and to pass a noise signal to a second filter output;

a difference circuit coupled to the first and second filter outputs that subtracts the second filter output from the first filter output to produce a difference signal; and

a comparison circuit that compares the difference signal to a first threshold associated with an incipient loss of lock on the broadcast signal.

44. The device of claim 43, wherein the first filter circuit has a passband center frequency between a staggered pair of transponder frequencies.

45. The device of claim 43, wherein the comparison circuit further compares the difference signal to a second threshold associated with a loss of lock on the broadcast signal.

46. The device of claim 43, further comprising first and second radio frequency detectors coupled between the respective first and second filter outputs and the difference circuit, wherein each of the first and second radio frequency detectors generates a respective voltage signal.

47. The device of claim 43, wherein the difference circuit includes an inverter coupled to the second filter output and an adder coupled to the first filter output and an output of the inverter.

48. The device of claim 43, wherein the first threshold is generated using one of information within the broadcast signal, a geographic location associated with the antenna, a zip code, a type of transponder currently being tuned by the integrated receiver decoder and an ambient temperature surrounding the antenna.

49. The device of claim 43, wherein the comparison circuit is adapted to provide a corrective output signal based on the comparison of the first threshold and the difference signal that activates a heater to heat the antenna.

50. The device of claim 43, wherein the first filter circuit has a first passband within a first transponder band having a first polarization and a second passband within a second transponder band having a second polarization.

51. A system for detecting a satellite signal, the system comprising:
a first filter having a passband center frequency between a first transponder center frequency of a first transponder band having a first polarization and a second transponder center frequency of a second transponder band having a second polarization and overlapping the first transponder band;
a second filter having a passband center frequency associated with a non-service band;
a difference block that generates a difference value based on an output of the first filter and an output of the second filter; and
a comparison block that compares the difference value to a threshold value associated with a loss of lock on the satellite signal.

52. The system of claim 51, wherein the threshold value is generated using one of information within the satellite signal, a geographic location, a zip code, a transponder and an ambient temperature.

53. The system of claim 51, wherein the threshold value is associated with an incipient loss of lock on the satellite signal.

54. The system of claim 51, further comprising an output block that provides a corrective output signal based on the comparison of the threshold value and the difference value.

55. The system of claim 51, further comprising a user interface that graphically indicates a result of the comparison of the threshold value and the difference signal.

56. The system of claim 55, wherein the user interface further indicates possible corrective actions based on the result of the comparison.

57. A system for detecting a satellite signal lock, the system comprising:

- a first filter having a passband center frequency substantially equal to a first transponder center frequency of a first transponder band;

- a second filter having a passband center frequency substantially equal to a second transponder center frequency of a second transponder band staggered with respect to the first transponder band;

- a third filter having a passband center frequency associated with a non-service band;

- a difference block that generates a difference value based on outputs of the first, second and third filters; and

- a comparison block that compares the difference value to a threshold value associated with a loss of lock on a broadcast satellite signal.

58. The system of claim 57, wherein the threshold is generated using one of information within the broadcast satellite signal, a geographic location, a zip code, a transponder and an ambient temperature.

59. The system of claim 57, wherein the threshold is associated with an incipient loss of lock on the broadcast satellite signal.

60. The system of claim 57, further comprising an output block that provides a corrective output signal based on the comparison of the threshold value and the difference value.

61. The system of claim 57, further comprising a user interface that graphically indicates a result of the comparison of the threshold value and the difference signal.

62. The system of claim 61, wherein the user interface further indicates possible corrective actions based on the result of the comparison.

63. A system for detecting a satellite signal, the system comprising:
a first filter having a passband center frequency between a first transponder center frequency of a first transponder band and a second transponder center frequency of a second transponder band different from the first transponder band;

a second filter having a passband center frequency spectrally separate from the first and second transponder bands;

a difference generator that generates a difference value based on an output of the first filter and an output of the second filter; and

a comparator that compares the difference value to a threshold value associated with a loss of lock on the satellite signal.

64. The system of claim 63, wherein the threshold is generated using one of information within the satellite signal, a geographic location, a zip code, a transponder and an ambient temperature.

65. The system of claim 63, wherein the threshold is associated with an incipient loss of lock on the satellite signal.

66. The system of claim 63, further comprising an output block that provides a corrective output signal based on the comparison of the threshold value and the difference value.

67. A method of detecting a broadcast satellite signal, comprising the steps of:

filtering a received broadcast satellite signal to generate a service signal having a center frequency between a first transponder center frequency of a first transponder band and a second transponder center frequency of a second transponder band that overlaps the first transponder band;

filtering the received broadcast satellite signal using a second filter having a passband center frequency associated with a non-service band that is spectrally separate from the first and second transponder bands;

subtracting an output of the second filter from an output of the first filter to generate a difference value; and

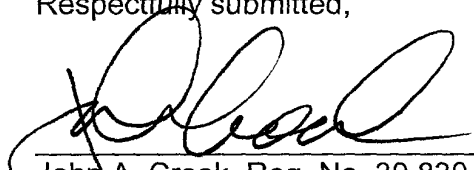
comparing the difference value to a threshold value associated with a loss of lock on the broadcast satellite signal.

68. The method of claim 67, further comprising the step of outputting a corrective signal based on the comparison of the difference value to the threshold value.

Applicants have submitted claims 43-68 to seek protection for aspects of the invention that are believed to be patentable. An early favorable action on the merits is respectfully requested.

Respectfully submitted,

By:



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